

## **BONNEVILLE SPILLWAY FLOW**

Testing and measured evidence suggests the painted dog markings on the walls of the gate wells at Bonneville Dam are inappropriately placed. These markings are used to calibrate the instruments that the project uses to measure gate openings. Those instruments then populate the control system that is used to control the spill flow.

Because the dog markings are misplaced, the spill quantity being reported at Bonneville Dam may not represent the actual quantity being spilled. The discrepancy may date back to the early 1970s, but may have become apparent in 2002 when the spill pattern was changed from having the majority of flow at the end bays of the spillway, which required the affected gates to be open more, to spreading the spill out equally across all 18 spill bays. This is more noticeable when the gates are at low openings of .5 ft –1.0 ft. The difference between the reported flow and actual flow for each gate is a greater percentage of the flow through that gate and, since more gates are at .5 ft- 1.0 ft open at lower spill quantities, the total difference becomes more apparent.

All dams have some level of inaccuracy in the flow and spill being monitored and reported. The table below shows the potential variation the Corps is evaluating at Bonneville Dam.

<b>SPILL FLOW QUANTITIES BASED ON CURRENT DOG MARKINGS</b>			
<b>REPORTED SPILL FLOW</b>	<b>POTENTIAL SPILL FLOW</b>	<b>DIFFERENCE</b>	<b>PERCENT DIFFERENCE</b>
50Kcfs	35Kcfs	-15Kcfs	29.8%
75Kcfs	64Kcfs	-11Kcfs	14.5%
100Kcfs	90Kcfs	-10Kcfs	9.6%
125Kcfs	118Kcfs	-7Kcfs	5.6%
150Kcfs	143Kcfs	-7Kcfs	4.1%

### **NEXT STEPS**

To respond to the discrepancy in spill, the Corps will change the spill gate settings at Bonneville Dam. The Corps is completing a research operation where the outflow had been 50 kcfs around the clock. The last treatment of the test is to operate with daytime spill of 75 kcfs and nighttime spill up to the gas cap. The last test block is to continue through August 1 at 0500 with this operation.

Beginning August 1 at 0500, Bonneville Dam outflow will be increased during daytime hours to assure an actual 75 kcfs spill volume. As a result, the reported spill during daytime hours on Sunday, August 1 will be about 85 kcfs or 86 kcfs. The spill pattern will be that shown in the 2004 Fish Passage Plan for a volume of 75 kcfs. with each gate opened an additional 0.3 feet. Nighttime spill will be up to the gas cap as measured at downstream fixed monitoring stations. The Corps' Hydraulics Section is examining the spillway and is preparing a proposal to verify the rating tables at Bonneville and other Corps Dams. When this is finished, the appropriate permanent adjustments will be made at Bonneville Dam.

This issue will be discussed in more detail at the TMT meeting Wednesday, August 4. If you have other questions in the meantime, please call Cindy Henriksen at (503) 808-3945.